

CLAIMS

1 1. (currently amended) A predistorter arrangement for linearising a distorting element, the
2 predistorter arrangement comprising:

3 a predistorter ~~means for processing~~ adapted to process an input signal which is required to be
4 processed by the distorting element, to produce a predistorted input signal which is supplied to an input
5 of the distorting element,

6 a pilot ~~means for generating~~ generator adapted to generate a pilot signal in the input signal, and
7 an error ~~correction means for detecting~~ corrector adapted to detect the presence of distortion
8 signals derived from cross-modulation of the input signal on the pilot signal in the distorting element
9 output signal to produce an error correction signal for controlling the processing of said input signal in
10 the predistorter ~~means~~.

1 2. (original) A predistorter arrangement as claimed in claim 1, wherein the distorting
2 element is an amplifier.

1 3. (currently amended) A predistorter arrangement as claimed in claim 2, further
2 comprising ~~means for removing~~ a pilot remover located downstream of the amplifier and adapted to
3 remove the amplified pilot signal from the amplifier output signal prior to or following detection of the
4 presence of distortion signals derived from the pilot signal in the amplifier output signal.

1 4. (currently amended) A predistorter arrangement as claimed in claim 1, wherein the pilot
2 ~~means~~ generator adds a pilot signal to the input signal.

1 5. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the
2 pilot signal is a multiple tone signal.

1 6. (original) A predistorter arrangement as claimed in claim 5, wherein the multiple tone
2 pilot signal is a two-tone signal.

1 7. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the
2 pilot signal is derived from the input signal.

1 8. (original) A predistorter arrangement as claimed in claim 7, wherein the pilot signal is a
2 frequency translated version of the input signal.

1 9. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the
2 pilot signal is a single tone signal.

1 10. (canceled)

1 11. (currently amended) A predistorter arrangement as claimed in claim 1, wherein the error
2 ~~correction means~~ corrector further detects the presence of distortion signals derived from intermodulation
3 of the pilot signal to control the generation of the error correction signal.

1 12. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the
2 frequency of the pilot signal is frequency hopped.

1 13. (currently amended) A predistorter arrangement as claimed in claim 1, wherein the
2 predistorter ~~means~~ comprises an input signal path for receiving an input signal which is required to be
3 processed by the distorting element, and a distortion path in which an input signal from the input signal
4 path is processed to generate a distortion signal, which is combined with the input signal in the input
5 signal path to produce the predistorted input signal.

1 14. (currently amended) A predistorter arrangement as claimed in claim 13, wherein the
2 ~~correction means~~ error corrector correlates the distorting element output signal with the distortion signal
3 to produce an error correction signal.

1 15. (currently amended) A predistorter arrangement as claimed in claim ~~[[13]]~~ 14, wherein
2 the distortion path includes ~~means for adjusting an adjuster adapted to adjust~~ the distortion signal in
3 phase and amplitude in dependence on the error correction signal.

1 16. (currently amended) A predistorter arrangement as claimed in claim 15, wherein the
2 ~~adjustment means~~ adjuster comprises a variable phase shifter and a variable attenuator.

1 17. (currently amended) A predistorter arrangement as claimed in claim 15, wherein the
2 ~~adjustment means~~ adjuster comprises an in-phase ~~adjustment means~~ adjuster and a quadrature phase
3 ~~adjustment means~~ adjuster.

1 18. (currently amended) A predistorter arrangement as claimed in ~~any of the preceding~~
2 ~~claims~~ claim 1 comprising:

3 first and second predistorters ~~means~~, the first predistorter ~~means~~ processing the input signal to
4 produce a first predistorted input signal which is supplied as an input to the second predistorter ~~means~~,
5 and the second predistorter ~~means~~ processing the first predistorted input signal to produce the
6 predistorted input signal supplied to the distorting element;

7 first and second pilot generators, the first pilot ~~means for generator~~ generating a first pilot signal
8 in the input signal, and the second pilot means for generator generating a second pilot signal in the first
9 predistorted input signal; and

10 first and second error correctors, the first error ~~correction means for corrector~~ detecting the
11 presence of distortion signals derived from the first pilot signal in the distorting element output signal to
12 produce a first error correction signal for controlling the processing of said input signal in the first
13 predistorter ~~means~~, and the second error correction means for corrector detecting the presence of
14 distortion signals derived from the second pilot signal in the distorting element output signal to produce a
15 second error connection signal for controlling the processing of said first predistorted input signal in the
16 second predistorter ~~means~~.

1 19. (currently amended) A predistorter arrangement as claimed in claim 18, in which the
2 first and second predistorters ~~means~~ are adapted so that only one of them cancels higher order distortion.

1 20. (currently amended) A predistorter arrangement as claimed in claim 18, in which the
2 first and second ~~pilot signals~~ error correctors share one or more components in common ~~which are~~
3 ~~derived from a common source~~.

1 21. (currently amended) A method for linearising a distorting element, including a
2 predistorter step in which an input signal which is required to be processed by the distorting element is
3 processed to produce a predistorted input signal which is supplied to an input of the distorting element, a
4 pilot generation step in which a pilot signal is generated in the input signal, and an error correction step
5 in which the presence of distortion signals derived from cross-modulation of the input signal on the pilot
6 signal in the distorting element output signal is detected to produce an error correction signal which
7 controls the step of processing the input signal.

1 22. (original) A method as claimed in claim 21, including first and second predistorter steps,
2 the first step being to process the input signal in a first predistorter to produce a first predistorted input

3 signal which is supplied to the input of a second predistorter in which the second step is carried out by
4 processing the first predistorted input signal to produce the input to the distorting element; first and
5 second pilot generation steps in which first and second pilot signal, respectively, are generated in the first
6 and second predistorters, respectively; and a first and second error correction steps in which the presence
7 of distortion signals derived from the respective pilot signals in the distorting element output signal are
8 detected to produce respective error correction signals which control the processing of signals in the
9 respective first and second predistorter steps.

1 23. (original) A method as claimed in claim 22, in which one of the predistorters is inhibited
2 from error correction while the other carries out correction to produce a steady state, and is then enabled
3 to carry out correction.

1 24. (currently amended) A control circuit for controlling a predistorter section of a
2 predistorter amplifier, the circuit having a pilot generator ~~means for coupling~~ adapted to couple to an
3 input of the predistorter section to add a pilot signal to signals input to the predistorter amplifier, and an
4 ~~error correction means for coupling~~ corrector adapted to couple to an output of the amplifier to sample
5 signals output from the amplifier and to detect the presence of distortion signals derived from cross-
6 modulation of the input signal on the added pilot signal, and for coupling to adjustment circuitry in the
7 predistorter section to adjust the predistorter section in dependence on the detected distortion signals.

1 25-28. (canceled)